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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/600,346	11/09/2000	Steven A. Sunshine	018564002410	2656

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EXAMINER

EASTHOM, KARL D

ART UNIT PAPER NUMBER

2832

DATE MAILED: 05/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/600,346

Applicant(s)

Sunshine et al.

Examiner

Karl Easthom

Art Unit

2832



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 11, 2002
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above, claim(s) 18-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 29-31 is/are rejected.
- 7) ☒ Claim(s) 17 is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- *See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 12
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

2. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Murata et al. or Meiklejohn. In Murata, the sensors 4 are in an array and "aligned" where they are in a line and parallel to one another in any of the Figs. 1-4. Similarly, in Meiklejohn, the sensors 19 are aligned in the holes of the substrate, with alternate nonconducting regions in the substrate 11. In claim 3, mechanical processes produced the device.

3. Claims 1-7, 10-11, 13-14, and 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Jin et al. Jin discloses the claimed sensor at Figs. 3 or 5, where the aligned material is 34 or 53. The structure can be used to detect an analyte since it is the same as the disclosed structure and claimed structure. Or, alternatively, the phrase "for detecting an analyte" is given no patentable weight as a statement of intended use. In claims 3-7, how the particles are aligned are process distinctions only that creates no resulting distinct product. The disclosed product of Jin is the same as the claimed product no matter how formed since the resulting product has aligned particles. See col. 4, lines 10-20 for iron and other particles.

4. Claims 1-7, 9-10 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Keen. Keen discloses the claimed invention at Fig. 2 with aligned conductive material the conducting

polymer strands 16. Then nonconductive region is 16. Circuitry (electrical measuring apparatus) is disclosed at col. 12, lines 38-55. Also note that DNA can be employed as the conductive strands, with a width of 20A - thus being aligned, see col. 13, lines 36-39. It is also noted that elements 18, termed "head groups" at col. 13, detect analyte, and are "aligned" over the elements 16. See col. 7, lines 35-40 - "molecular recognition groups aligned in a common orientation". See also col. 23, lines 3-67, where the head groups 18 are aligned via an electric field, col. 23, lines 40+ and specifically lines 60-66, since they are "uniaxially oriented" via an electric field. In claims 4-6, the electric alignment also has a magnetic field, since all electric fields do. Same is induced by light at col. 23, lines 5-20. In claim 9, the electrons or charge transport is a nanoparticle. In claims 10 and 15, metal, iron oxide or silicon dioxide are disclosed at col. 25, lines 25-40. In claims 7 and 9, the molecules are composites that are nanoparticles given the size of strands 16 at col. 13, lines 32-37 in the nanometer range.

5. Claims 1-16 and 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Simendinger, III et al. Simendinger discloses all the conductive material of claims 8-15 at claim 12, and col. 4, lines 39-67, where col. 3 discloses that the conductive components of the first second polymers may be the same. The alignment is as depicted at Fig. 1 for the second polymer.

Claims 3-6 are met regardless of the method employed for alignment as noted above. Further, magnetic alignment, disclosed at col. 5, cannot occur without an electric field. Particle sizes of 10 nanometers are disclosed as .01 microns at col. 5, line 11, and are deemed to be nanoparticles of claim 9. Any of the wide class of polymers disclosed at cols. 1-2 are capable of performing the analyte function, assuming it is a claimed element.

6. NOTE: As evidence that the polymers disclosed in Simendinger can be used to detect an analyte, see page 16 of Lewis WO '663 -(a wide class including polycarbonates, polyesters, etc are disclosed which are the same as the claims noted in col. 3 of Simendinger, III. This remark pertains to the other references where the class is so large, the organic polymers disclosed in the references applied are expected to also be capable of detecting an analyte. The 112 rejections noted above might be overcome by amending to incorporate the essential material and claiming the required polymers and/or conductive elements, assuming there is support in the documents incorporated by references. However, evidence must be supplied to counter the assertion of the inherent ability of the aligned devices to detect analyte to overcome the prior art rejections. This burden is shifted to applicant since the materials in Simendinger, III (at least) are the same as that in Lewis as noted.

7. Claims 1 and 29-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Martin et al. '769 or Martin et al. '868. In Martin '769, the aligned magnetic particles are rod or sheet like as noted at col. 2, lines 40-45, and are immersed in a polymer - the nonconductive region, as noted at cols. 3-4. See col. 6, lines 35-50 for analyte detection. Col. 5, lines 55-60 of '868 discloses iron comprising particles for claim 30, with similar disclosure for the remaining elements. An electrical measuring apparatus is implicit in an electrical detector. Each chain or rod is a sensor.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over .

10. Applicant's arguments filed 4/11/02 have been fully considered but they are not persuasive.

As to the traversal, the aligned regions are as noted above. For example, see the art rejections with Simindinger III and Jin. As to the art, applicant argues Murata does not anticipate the claim because his "aligned" conductive regions are not the same as disclosed by applicant. Of course, the disclosure is not material, what is claimed is material. Applicant states Murata teaches a single sensor, but this is not correct where each part 4 is a sensor, or see the four sensors in Figs. 1-4. Applicant argues Jin does not teach a sensing region, this is not correct where the sides of the device inherently absorb analyte and is thus a sensing region. Applicant's specification indicates a large class of polymers and conductors can sense the fluid. For this reason, the inherent rejections are made, while the 112 rejections are dropped. Similar remarks apply to Simendinger, III. As to Keen, applicant apparently argues that the nonconductive region therat is not part of the sensing region. This is not correct because the sensing region 16 will inherently absorb some analyte, since it appears that a broad class of polymers will do so.

11. Claim 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. There is no suggestion for the claimed conductive materials copper phthalocyanine and phenothiazine, which are known materials for sensing analytes, in an aligned conductive material region for sensing analytes. Martin discloses analyte detectors having

magnetic conductive aligned regions, but it appears that the claimed conductive materials of claim 17 are aligned by light according to applicant's specification.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl Easthom whose telephone number is (703)308-3306. The examiner can normally be reached on M-Th. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad, can be reached on (703)308-7619. The fax phone number for the organization where this application or proceeding is assigned is (703)308-7722. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


KARL D. EASTHOM
PRIMARY EXAMINER